

## IN THE CLAIMS

1. (Currently Amended) A pilot valve for use in controlling a pressure reducing valve of a water supply system, said valve comprising:

    biasing means to control a gate for controlling water flow through a control chamber having an outlet connectable so that water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve being controlled;

    a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control gas pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control gas pressure acts to reduce water flow through the gate; the control gas pressure is different from the outlet pressure of the pressure reducing valve being controlled; and

    wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber.

2. (Previously Presented) A pilot valve according to claim 1 wherein said biasing means is biased to open said gate.

3. (Previously Presented) A pilot valve according to claim 2 wherein said biasing means is rigidly connected to said gate by a mechanical linkage.

4. (Previously Presented) A pilot valve according to claim 3 wherein the diaphragm is rigidly connected to said biasing means via a mechanical linkage.

5. (Previously Presented) A pilot valve according to claim 1 wherein said biasing means is a spring means.

6. (Currently Amended) A pilot valve according to claim 5 6-wherein said spring means is a helical spring.

7. (Previously Presented) A pilot valve according to claim 1 further including a control chamber diaphragm.

8. (Currently Amended) A pilot valve according to claim ~~7~~ 1 wherein said biasing means is located on the opposite side of said control chamber diaphragm to said control chamber.

9. (Previously Presented) A pilot valve according to claim 7 wherein the ratio of the area of said control chamber diagram to said second chamber diaphragm is 2:1 or less.

10. (Previously Presented) A pilot valve for use in controlling a pressure reducing valve in a water supply system, said valve comprising:

    biasing means to control a gate for controlling water flow through a control chamber having an outlet connectable so that water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve being controlled;

    a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into

which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate; the control pressure is different from the outlet pressure of the pressure reducing valve being controlled;

wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber;

wherein the biasing means is biased to open the gate and is rigidly connected to the gate by a mechanical linkage;

wherein the diaphragm is rigidly connected to the gate and the biasing means by a mechanical linkage; and

further including a control chamber diaphragm wherein said biasing means is located on the opposite side of the control chamber diaphragm to the control chamber.

11. (Previously Presented) A pilot valve for use in controlling a pressure reducing valve of a water supply system, said pilot valve comprising

biasing means to control a gate for controlling water flow through a control chamber having an outlet connectable so that water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve being controlled;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate; the control pressure is different from the outlet pressure of the pressure reducing valve being controlled;

wherein the side of the diaphragm against which the control pressure is not applied is in fluid communication with the control chamber; and

wherein the control chamber is at least partly bounded by a control chamber diaphragm in addition to the second chamber diaphragm and the biasing means is isolated from the control chamber by said control chamber diaphragm.

12. (Previously Presented) Pressure controlling apparatus including a pilot valve and a pressure reducing valve for a water supply system, said pilot valve controlling said pressure reducing valve, wherein said pilot valve comprises

biasing means to control a gate for controlling water flow through a control chamber having an outlet connected so that in use water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate and the pressure reducing valve; the control pressure is different from the outlet pressure of the pressure reducing valve;

wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber.

13. (Previously Presented) Pressure controlling apparatus including a pilot valve and a pressure reducing valve for a water supply system, said pilot valve controlling said pressure reducing valve,

wherein said pilot valve comprises

biasing means to control a gate for controlling water flow through a control chamber having an outlet connected so that in use water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate and the pressure reducing valve; the control pressure is different from the outlet pressure of the pressure reducing valve;

wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber; and

the control chamber is at least partly bounded by a control chamber diaphragm in addition to the second chamber diaphragm and the biasing means is isolated from the control chamber by said control chamber diaphragm.

14. Pressure controlling apparatus including a pilot valve and a pressure reducing valve for a water supply system, said pilot valve controlling said pressure reducing valve, wherein said pilot valve comprises

biasing means to control a gate for controlling water flow through a control chamber having an outlet connected so that in use water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve;

a second chamber being isolated from fluid communication with said control chamber and

with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate and the pressure reducing valve; the control pressure is different from the outlet pressure of the pressure reducing valve;

wherein the side of the diaphragm against which the control pressure is not applied is in fluid communication with the control chamber;

wherein the biasing means is biased to open the gate and is rigidly connected to the gate by a mechanical linkage;

further including a control chamber diaphragm; and

wherein said biasing means is located on the opposite side of the control chamber diaphragm to the control chamber.

15. (Previously Presented) Pressure controlling apparatus including a pilot valve and a pressure reducing valve for a water supply system, said pilot valve controlling said pressure reducing valve, wherein said pilot valve comprises:

biasing means to control a gate for controlling water flow through a control chamber having an outlet connected so that in use water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate and the pressure reducing

valve; the control pressure is different from the outlet pressure of the pressure reducing valve;

wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber;

wherein the biasing means is biased to open the gate and is rigidly connected to the gate by a mechanical linkage;

further including a control chamber diaphragm;  
wherein said biasing means is located on the opposite side of the control chamber diaphragm to the control chamber; and

wherein the ratio of the area of said control chamber diaphragm to said second chamber diaphragm is 2:1 or less.

16. (Currently Amended) A pilot valve according to claim 7 wherein the ratio of the area of said control chamber diagram to said second chamber diaphragm is 4:3 or less, so that in use, an increase of the control gas pressure by a given amount causes the outlet pressure to decrease by three or more times that amount.

17. (Canceled)

18. (Previously Presented) A pilot valve for use in controlling a pressure reducing valve of a water supply system, said valve comprising:

biasing means to control a gate for controlling water flow through a control chamber having an outlet connectable so that water pressure at the outlet is substantially equal to the outlet pressure

of the pressure reducing valve being controlled;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate; the control pressure is different from the outlet pressure of the pressure reducing valve being controlled;;

wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber;

further including a control chamber diaphragm; and

wherein the ratio of the area of said control chamber diagram to said second chamber diaphragm is 4:3 or less, so that in use, an increase of the control pressure by a given amount causes the outlet pressure to decrease by three or more times that amount.

19. (Previously Presented) A pilot valve for use in controlling a pressure reducing valve of a water supply system, said valve comprising:

biasing means to control a gate for controlling water flow through a control chamber having an outlet connectable so that water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve being controlled;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate; the control pressure is



different from the outlet pressure of the pressure reducing valve being controlled;

wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber; and

wherein the control pressure is gas pressure.

20. (Previously Presented) Pressure controlling apparatus including a pilot valve and a pressure reducing valve for a water supply system, said pilot valve controlling said pressure reducing valve, wherein said pilot valve comprises:

biasing means to control a gate for controlling water flow through a control chamber having an outlet connected so that in use water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate and the pressure reducing valve; the control pressure is different from the outlet pressure of the pressure reducing valve;

wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber;

wherein the biasing means is biased to open the gate and is rigidly connected to the gate by a mechanical linkage;

further including a control chamber diaphragm;

wherein said biasing means is located on the opposite side of the control chamber diaphragm

to the control chamber; and

wherein the ratio of the area of said control chamber diaphragm to said second chamber diaphragm is 4:3 or less, so that in use, an increase of the control pressure by a given amount causes the outlet pressure to decrease by three or more times that amount.

21. (Previously Presented) Pressure controlling apparatus including a pilot valve and a pressure reducing valve for a water supply system, said pilot valve controlling said pressure reducing valve, wherein said pilot valve comprises

biasing means to control a gate for controlling water flow through a control chamber having an outlet connected so that in use water pressure at the outlet is substantially equal to the outlet pressure of the pressure reducing valve;

a second chamber being isolated from fluid communication with said control chamber and with the pressure reducing valve being controlled is sealed by a second chamber diaphragm into which control pressure is applicable for also controlling the operation of the gate, whereby, in use, an increase in control pressure acts to reduce water flow through the gate and the pressure reducing valve; the control pressure is different from the outlet pressure of the pressure reducing valve; wherein the side of the diaphragm against which the control pressure is not applied, is in fluid communication with the control chamber; and

wherein the control pressure is gas pressure.